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APPLICATION NUMBER: *60/550,788*
FILING DATE: *March 05, 2004*
RELATED PCT APPLICATION NUMBER: *PCT/US05/07355*

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PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

INVENTOR(S)

Given Name (first and middle [if any])	Family Name or Surname	Residence (City and either State or Foreign Country)
JOHN	BREWSTER	2060 HAWTHORNE RD., HOMEWOOD, IL 60430

☐ *Additional inventors are being named on the____ separately numbered sheets attached hereto*

TITLE OF THE INVENTION (280 characters max)

MULTIPURPOSE LADING TIE ANCHOR SYSTEM FOR SECURING CARGO

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ENCLOSED APPLICATION PARTS *(check all that apply)*

☒ Specification *Number of Pages* 14 ☐ CD(s), Number

☒ Drawing(s) *Number of Sheets* 06 ☐ Other (specify)

☐ Application Data Sheet. See 37 CFR 1.76

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The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

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Respectfully submitted,

SIGNATURE David C Brezina

Date 03/03/2004

TYPED or PRINTED NAME DAVID C. BREZINA

REGISTRATION NO. *(if appropriate)* 34,128

Docket Number: 921095-94914

TELEPHONE 312-214-4802

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John Brewster

Multipurpose Lading Tie Anchor System for Securing Cargo

Serial No. To Be Assigned Herewith

Filing Date: Herewith

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1. Large Entity Provisional Patent Application Transmittal Sheet
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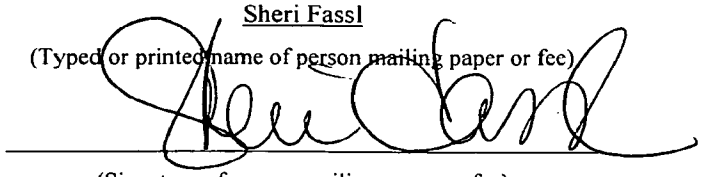

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MULTIPURPOSE LADING TIE ANCHOR SYSTEM FOR SECURING CARGO

Background of the Invention

[0001] Loads on railway cars need to be restrained from shifting under the various loads imposed by draft, buff, and rocking of the car. For particular types of loads, such as large rolls or coils of sheet material, or palletized loads, tensioning mechanisms using straps and anchors are advantageous.

[0002] To avoid the limitations with present practices of prior art the invention relates generally to the improvement in lading tie anchor systems for railway cars. Prior art is specific to a particular type of strap, hook, pin or anchor fitting and is limited to its own inherent arrangement. The invention combines several distinct elements into an improved cargo lading tie anchor system so as to offer the user more versatility in securing cargo.

[0003] This novel multipurpose anchor has multiple provisions and adapted to receive various different types of straps and cargo lading tie hardware that correspond to their particular attachment features.

[0004] The invention also provides a lading tie anchor system and method of using the same which can use various lading tie straps, bands, strap end pin or strap end hooks already in use and practice with various railway cars.

[0005] The anchor fitting is mountable in a wall, deck or support of a vehicle so that the fitting can be adapted to different load conditions including a different mix of lading.

Description of Related Art

[0006] U.S. Patent 6,422,794 teaches a cargo snugger strap and hook mechanism with an anchor with a "L" shaped aperture, where said system is dependant upon cargo straps and hook mechanism tailored to fit the specific "L" shaped aperture anchor. The disclosure in this patent is incorporated by reference in the instant application as if fully set forth herein.

[0007] U.S. Patent 6,402,446 teaches a lading tie anchor system with a strap and a specific rigid hook body that respectively is retained and dependant upon a specifically shaped tie anchor aperture. The disclosure in this patent is incorporated by reference in the instant application as if fully set forth herein.

[0008] Application Publication No. 2003/0133767A1 published July 17, 2003, shows two apertures, one for a pin and one for a plain woven strap. The unique capability of multipurpose anchor 10 allows enhanced usability for the railway car 34. Different arrangements, size and shaped lading 22 call for particular lading tie anchor system scenarios. The applicant's invention is intended to offer multiple lading tie hardware usage options so as to result in the railway car 84 being more versatile than what is disclosed within the prior art that has been previously discussed.

[0009] The forgoing prior art teaches certain parameters for lading tie anchor and lading tie strap systems and uses specific solutions to meet the needs. The instant invention departs from the limited functionality in its use of the anchors being specific to a limited selection of tie straps. Additionally, the prior art typically uses specific hardware that is dedicated for its specific use and is not versatile in its nature. The instant invention utilizes simple, yet offers an anchor with provisions to accept multiple strap configurations and not limited to the specific "L" shaped or bar shaped aperture anchor which offers a real advantage for the user so the user is not limited to usage of a limited strap hardware provision.

Brief Description of the Drawings

[00010] Figure 1 is a largely schematic perspective view of support surfaces to which the indicated anchors and lading tie straps have been applied, and several cargo pallet loads to be supported thereon, which support surface may be, for instance, the wall or deck of a railway box car.

[00011] Figure 2 is a diagrammatic perspective view showing a multipurpose anchor disposed to receive the various types of conventional lading tie straps and/or connecting hardware.

[00012] Figure 3 is a front elevational view of the multipurpose anchor disposed to receive the various types of conventional lading tie straps and/or connecting hardware.

[00013] Figure 4 is a side elevational view of the multipurpose anchor.

[00014] Figure 5 is a back elevational view of the multipurpose anchor.

[00015] Figure 6 is a horizontal view of the multipurpose anchor.

[00016] Figure 7 is a sectional view taken on line 35 of figure 3.

[00017] Figure 8 is a sectional view taken on line 34 of figure 3.

[00018] Figure 9 is a horizontal view of the multipurpose anchor showing that the back surfaces have been and are allowed to be tailored to fit and interface the railway car as the user desires.

[00019] Figure 10 is a side elevational view of the multipurpose anchor showing that the surfaces have been and are allowed to be tailored to fit and interface the railway car as the user desires.

[00020] Figure 11 is a front elevational view of the multipurpose anchor showing that the front surfaces have been and are allowed to be tailored to rearrange the features so as to receive the various types of conventional lading tie straps and/or connecting hardware in the railway car as the user desires.

[00021] Figure 12 is a side elevational view of the multipurpose anchor showing that the surfaces have been and are allowed to be tailored to fit and interface the railway car as the user desires.

[00022] Figure 13 is a sectional view taken on line 36 of figure 11.

[00023] Figure 14 is a back elevational view of the multipurpose anchor showing that the back surfaces have been and are allowed to be tailored to rearrange the features so as to receive the various types of conventional lading tie straps and/or connecting hardware and to fit and interface the railway car as the user desires.

[00024] Figure 15 is a front elevational view of the multipurpose anchor showing an another example that the front surfaces have been and are allowed to be

tailored to rearrange the features so as to receive the various types of conventional lading tie straps and/or connecting hardware in the railway car as the user desires.

[00025] Figure 16 is a front elevational view of the strap and anchor during the step of aligning the pin with the multipurpose anchor.

[00026] Figure 17 is a front elevational view of the strap properly seated within the multipurpose anchor.

[00027] Figure 18 is a sectional view taken on line 37 of figure 17.

[00028] Figure 19 is a back elevational view of the strap properly seated within the multipurpose anchor.

[00029] Figure 20 is a sectional view taken on line 35 of figure 3 illustrating the arrangement of steel banding or a woven strap in relation with the lading tie receiving provision of the multipurpose anchor.

[00030] Figure 21 is a sectional view taken on line 35 of figure 3 illustrating the arrangement of a lading tie strap with a hook type clip in relation with the lading tie receiving provision of the multipurpose anchor.

Detailed Description of the Preferred Embodiment

[00031] Referring now to Figure 1, there is illustrated in somewhat of a diagrammatic manner a support 20 upon which a cargo pallet 23 with lading 22 is to be secured by Applicant's improved multipurpose anchor 10 by way of use of a typical industry cargo lading tie strap 25, 32 or 33 that, in this regard, are arranged in accordance with the principles of the present invention herein disclosed. The wall support 21 upon which a cargo lading tie strap 25, 32 or 33 is to be secured

by Applicant's improved multipurpose anchor 10 that, in this regard, are arranged in accordance with the principles of the present invention herein disclosed. The support 20 may, for instance, be a deck or floor of a railway flat car or other rail transport vehicle 84, or support 20 may be another type of vehicle to which the device 10 is applied in multiples for the usual application thereof to lading 22 with or without cargo pallets 23. The wall support 21 may, for instance, be a wall or bulkhead of a railway boxcar or other rail transport vehicle 34, or wall support 21 may be another type of vehicle to which the device 10 is applied in multiples for the usual application thereof to lading 22 with or without cargo pallets 23.

[00032] The principles of the present invention are applicable to securing various types of lading 22 to various types of supports 20, 21 and 24. In the figure 1, illustrated embodiment of the invention, the cargo lading 22 is of a cylindrical container 26 configuration that is involved in containing various types of commodities within. Illustrated are 4 containers 26 arranged upon a pallet 23, but containers 26 may be of any number or configuration as deemed desired by the user and industry practice. The cargo lading 22 need not be cylindrical in form and may be of any size and shape deemed desired by the user and industry practice. Figure 1 illustrates various pallets 23 arranged as desired by the user which may include stacking upon support 20. It is to be noted that pallets 23 are not necessary for securing lading 22 by Applicant's improved multipurpose anchor 10 by way of use of a typical industry cargo lading tie straps 25, 32 or 33 that, in this regard, in accordance with the principles of the present invention herein disclosed. Lading 22 and lading tie straps 25, 32 or 33 may be of the type

specified by the standards of the Association of American Railroads. The interface between multipurpose anchor 10 and support 20 and/or wall support 21 is tailor able so as to assure proper securement of lading 22, modifications thereto will be apparent to those skilled in the art. In figure 1, multipurpose anchor 10 is mountable to a side wall stake post 24 illustrating one example of said proper support. In accordance with the present invention, the multipurpose anchors 10 are intended to be mounted to achieve securement of the respective lading 22 as hereinafter disclosed.

[00033] Applicant's improved multipurpose anchor 10 is shown in various locations of support 20 and/or wall support 21 in figure 1. The number and location of said anchor 10 is tailorable to provide the desired securement options desired by the user and thereto will be apparent to those skilled in the art.

[00034] The multipurpose anchor 10 of the present invention is illustrated in detail in FIGS. 2 through 21, which will be described in detail hereinafter.

[00035] The improved multipurpose anchor 10 is comprised of front surface 11, a lading tie receiving section 12, a lading tie clearance cavity 13, back contoured surface 14 and a lading tie aperture 15. A perspective view is shown in figure 2. The multipurpose anchor 10 has side edges 16, 17, 18, 19, 30 and 31 which extend outwardly from the multipurpose anchor face 11 which interface with a vehicle support 20 or wall support 21 and is tailorable to provide the desired attachment options desired by the user and thereto will be apparent to those skilled in the art. The actual size and shape of the side edges are allowed to be varied as desired by the user and is not dependant upon the function of the

applicant's invention. The back contoured surface 14 is tailorable to provide the desired attachment options and car clearances desired by the user and thereto will be apparent to those skilled in the art.

[00036] The illustrations in figure 3, 11 and 15 shows a typical front view of three alternative different front arrangements of the multipurpose anchor. The views show the surface 11 of said multipurpose anchor 10 that is typically exposed and ready for acceptance of the various cargo lading tie straps 25, 32 or 33. Figure 3 illustrates a scenario of aperture 15 and lading tie receiving section 12 in which they are offset partially horizontally and vertically. Lines 34 and 35 represent their relative horizontal centers. Figure 11 shows an embodiment in which aperture 15 and lading tie receiving section 12 are both aligned along line 36. Figure 15 illustrates an embodiment where aperture 15 and lading tie receiving section 12 are vertically aligned about line 40. Each of these embodiments can receive a variety of load securement connectors such as pins, hooks, clips, woven straps or metal binding. The embodiments of a pin end tie strap 25, steel or woven synthetic loop-end tie strap 32 or hook end tie strap 33 are all usable with the multi-purpose anchor.

[00037] A side elevational view of multipurpose anchor 10 is shown in figure 4. Typically all the surfaces shown would be hidden from view of the user, as the anchor is imbedded in a wall, or floor, and are not all necessary for the function of the securing of the preferred lading tie straps 25, 32 or 33. Figures 10 and 12 illustrate respective side views of alternate front surface 11 view of figure 11 where different front arrangements of said multipurpose anchor 10 is allowed.

[00038] A back elevational view of multipurpose anchor 10 is shown in figure 5. As with Fig. 4, the surfaces would be hidden from view. Surfaces 38 and 39 are the respected areas where pin ends 26 and 27 of lading tie strap 25 rest on during securement of lading 22. All other exterior surfaces in figure 5 are tailorable so as to interface with railway car 34 support surfaces 20, 21 and/or 24 as desired.

[00039] An alternate back elevational view of anchor 10 is shown in figure 14 which is the back of the embodiment of Figure 11. As with the other views, the interior surfaces shown would be hidden. Surfaces 41 and 42 are the respected areas where pin ends 26 and 27 of lading tie strap 25 rest on during securement of lading 22. All other viewable surfaces in figure 14 are tailorable so as to interface with railway car 34 support surfaces 20, 21 and/or 24 as desired. Referring to figures 5 and 14 It may also be recognized that the nonfunctional areas in aperture 15 are tailor able as desired.

[00040] Figures 6 and 9 is a horizontal view of 2 different arrangements of anchor 10 relative to the front surface 11 view of figures 3 and 11 where different front arrangements of anchor 10 is allowed. Typically the surfaces shown would be hidden, and are not necessary for the function of the securing of the desired lading tie straps 25, 32 or 33.

[00041] Figure 7 is a sectional view taken on line 35 of figure 3 which more clearly illustrates a horizontal view of clearance cavity 13. Clearance cavity 13 is to offer a path for the proper securement of lading tie straps 32 or 33.

[00042] Figure 13 is a sectional view taken on line 36 of figure 11 which more clearly illustrates a horizontal view of an alternate clearance cavity 13 and

aperture 15. Alternate clearance cavity 13 and aperture 15 is tailor able but is to offer a path for the proper securement of lading tie straps 25, 32 or 33.

[00043] Figure 8 is a sectional view taken on line 34 of figure 3 showing a horizontal view of aperture 15 opening. Aperture 15 provides a path for the proper securement of lading tie strap 25.

[00044] Figure 16 illustrates a plan view of lading tie strap 25 and multipurpose anchor 10 during the step of aligning pin ends 26 and 27 into aperture 15. Aperture 15 opening in said multipurpose anchor 10 is to be shaped appropriately so as to allow proper insertion of pin ends 26 and 27.

[00045] Figure 17 is a plan view of lading tie strap 25 secured in said multipurpose anchor 10. Pin collars 28 and 29 aid in keeping lading tie strap 25 properly aligned within aperture 15 of said multipurpose anchor 10.

[00046] Figure 18 is a sectional view taken on line 37 of figure 17 illustrating pin end 26 and pin collar 28 seated on area 38 and aperture 15 of anchor 10. The flexible part of lading tie strap 25 is shown seated and supported against shoulder 43 of said multipurpose anchor 10.

[00047] Figure 19 is a back elevational view of said multipurpose anchor 10 with lading tie strap 25 properly secured. Pin ends 26 and 27 are respectively shown seated onto surfaces 38 and 39 of said multipurpose anchor 10.

[00048] Figure 20 is a sectional view taken on line 35 of figure 3 illustrating a lading tie band 32 seated around lading tie receiving section 12 appropriately. Loop end lading tie band 32 represents industry standard steel banding. Alternatively, other conformable and/or flexible securement material such as a

woven synthetic fiber-strap could be used. Clearance cavity 13 and receiving section 12 is allowed to be tailored so as to allow the various types of industry lading tie strap or band 32 to be utilized with said multipurpose anchor 10. Notably, the proportions illustrated for cavity 13 would receive a fiber-strap and actually exceed the height needed for a steel band.

[00049] Figure 21 is a sectional view taken on line 35 of figure 3 illustrating a lading tie strap with a hook-type clip 33 seated around lading tie receiving section 12. Hook 33 is an industry flexible strap with one or both ends having typically metallic hook-type clips. Clearance cavity 13 and receiving section 12 is allowed to be tailored so as to allow the various types of industry lading tie strap clips 33 to be utilized with anchor 10.

[00050] Anchor 10 has the capability to accept various different types of cargo lading straps 25, 32 and 33 unlike the prior art.

[00051] The applicant's multipurpose anchor 10 is different from U.S. Patent number 6,422,794 in that it is not limited to receiving only the lading tie strap 25 with pin ends 26 and 27 disclosed. The applicant's invention of said multipurpose anchor 10 allows the use of the prior art strap 25 and has an additional enhancement feature 12 which allows other types of lading tie straps 32 and/or 33 to be used by the user.

[00052] The applicant's multipurpose anchor 10 is different from U.S. Patent 6,402,446 discussed above in that it is not limited to receiving only the lading tie strap 33 with the rigid hook body disclosed. The applicant's invention of said multipurpose anchor 10 allows the use of the prior art strap 33 and has an

additional enhancement feature 15 which allows lading tie strap 25 to be used by the user.

[00053] Although the invention is described with respect to a preferred embodiment, modifications thereto will be apparent to those skilled in the art. Therefore, the scope of the invention is to be determined by reference to such claims as may be submitted.

Abstract

[00054] An anchor with a shaped aperture that receives various and multiple types of tie straps and strap hardware end comprising of straps of woven webbing with or without a hook or pin end, or straps of the one-time useable steel banding type. The tie strap being held in place by the appropriate anchor provision and the said anchor being contained within a pocket in the wall or floor of railway box or flat car. Various industry lading tie straps, bands, strap end pin or strap end hooks already in use are allowed to be connected to the shaped aperture anchor. An appropriate ratchet inherent to the specific type of tie strap being used is operated to remove any remaining slack in the lading ties and then apply the desired tension thereon to secure the lading to the railway car.

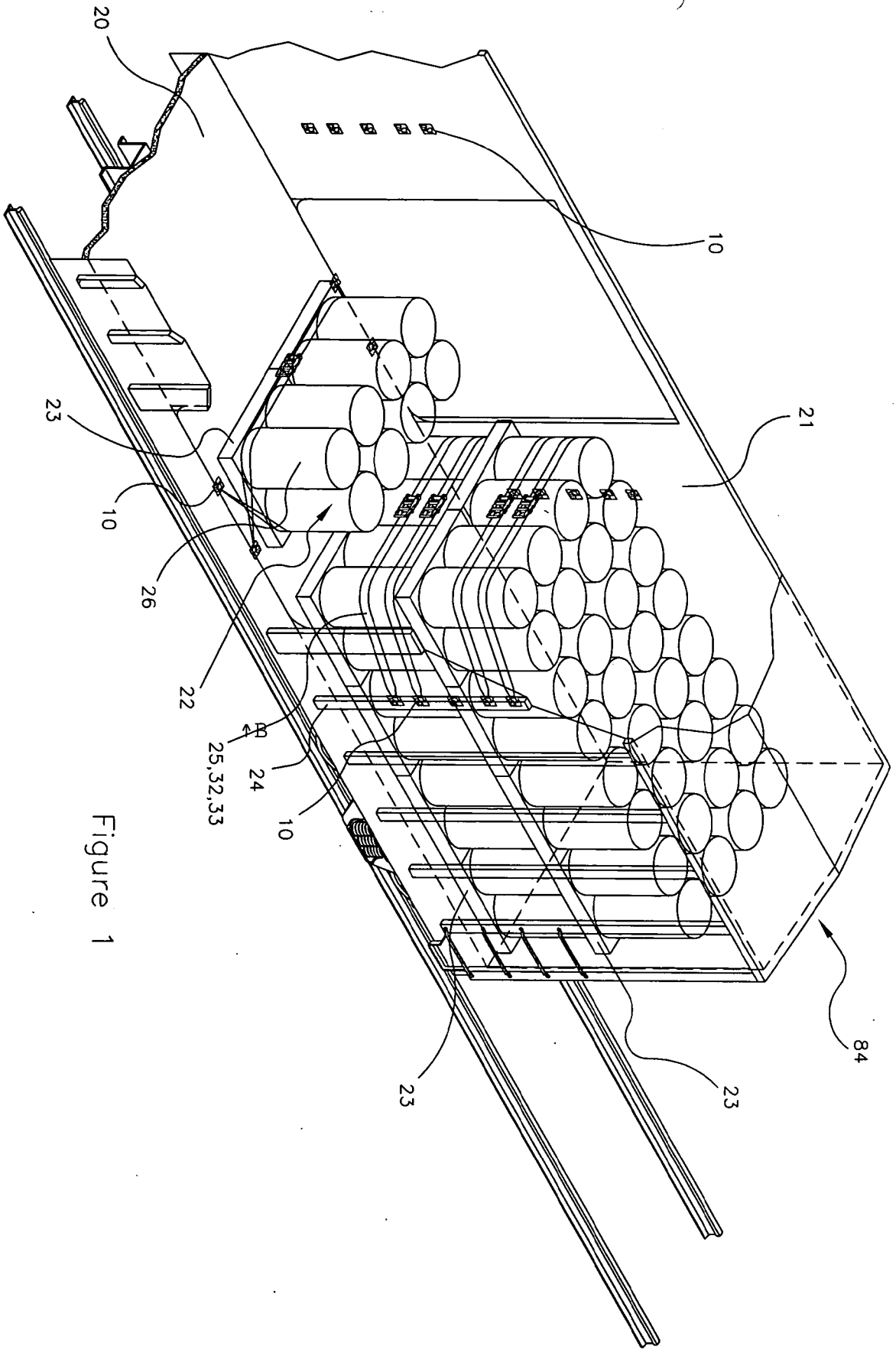

Figure 1

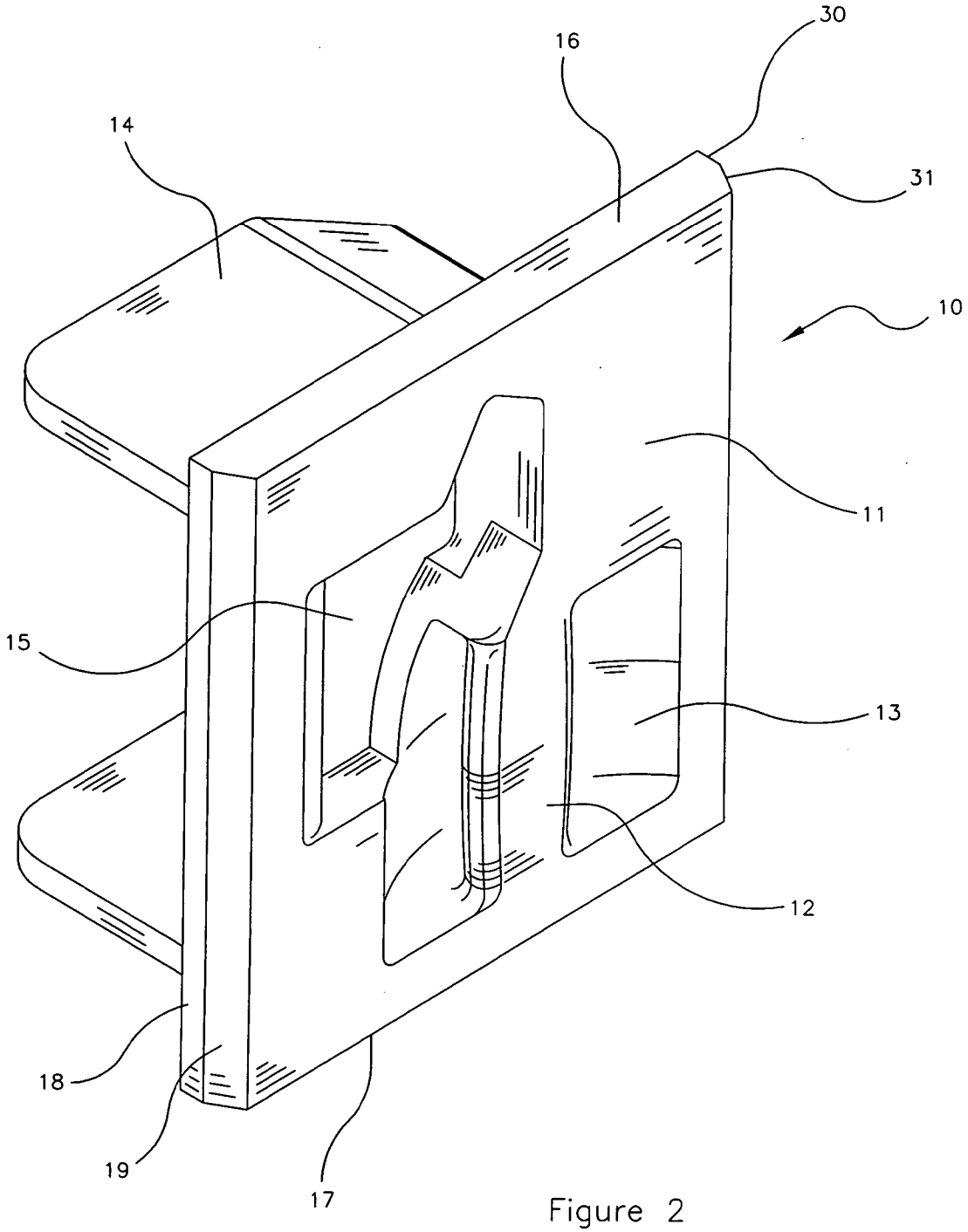

Figure 2

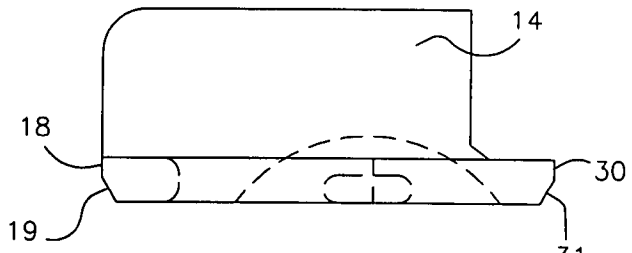

Figure 6

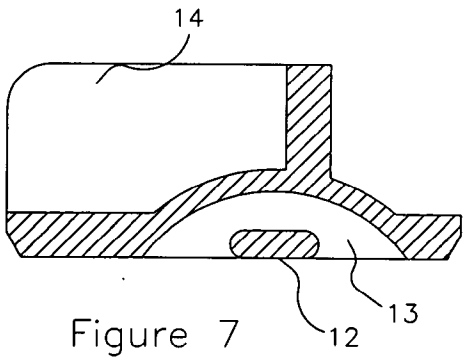

Figure 7

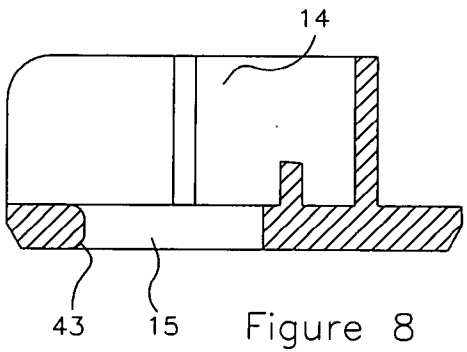

Figure 8

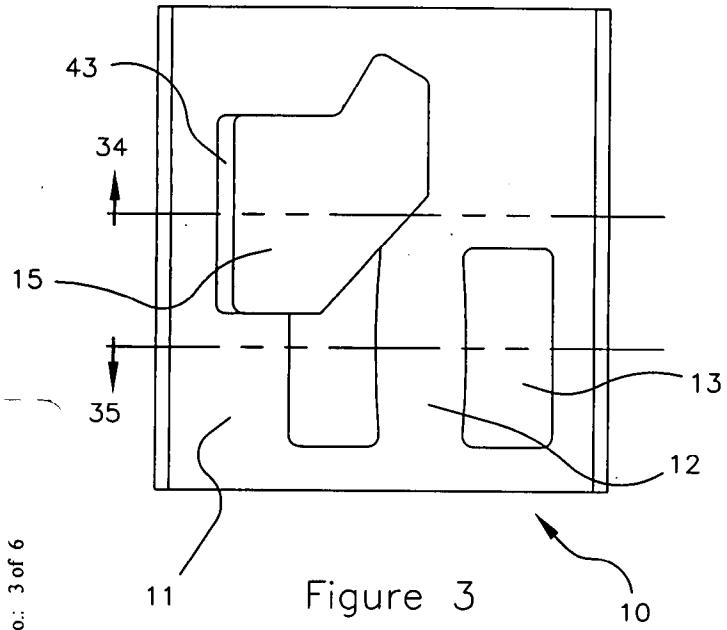

Figure 3

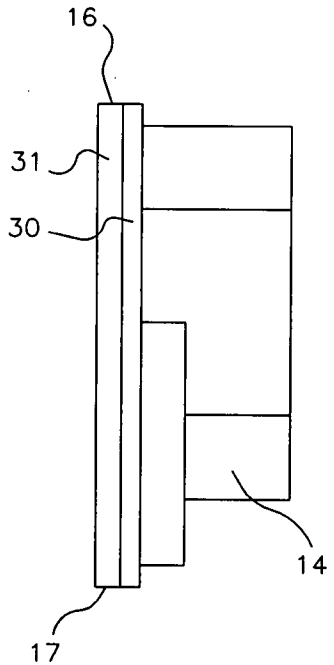

Figure 4

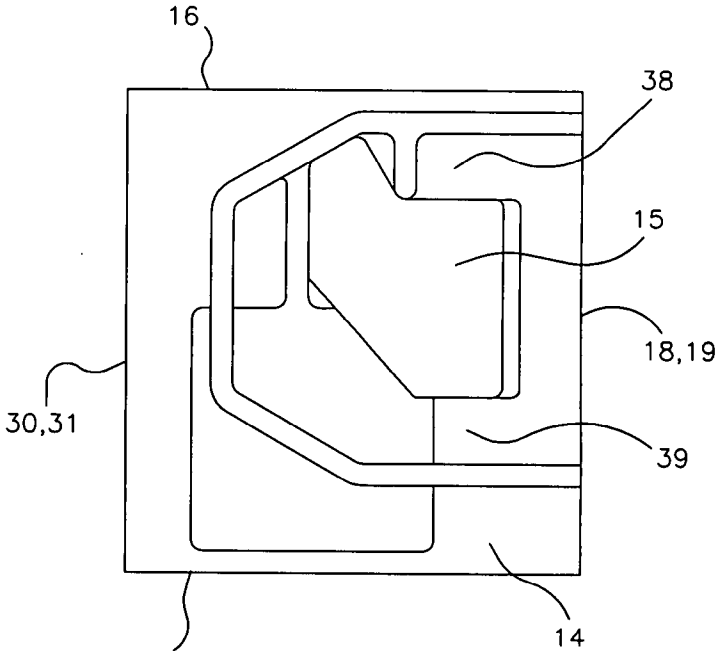

Figure 5

Docket No.: 921095-94914
Title: Multipurpose Lading Tie Anchor System for Securing Carg
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Filing Date: Filed Herewith
Sheet No.: 3 of 6

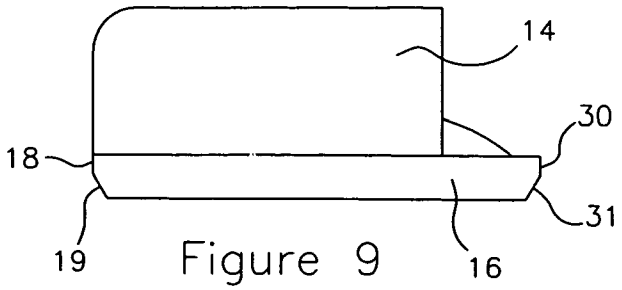

Figure 9

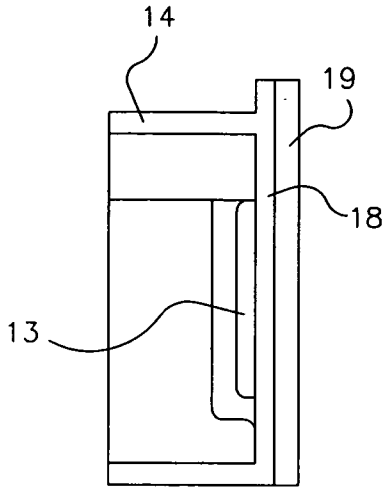

Figure 10

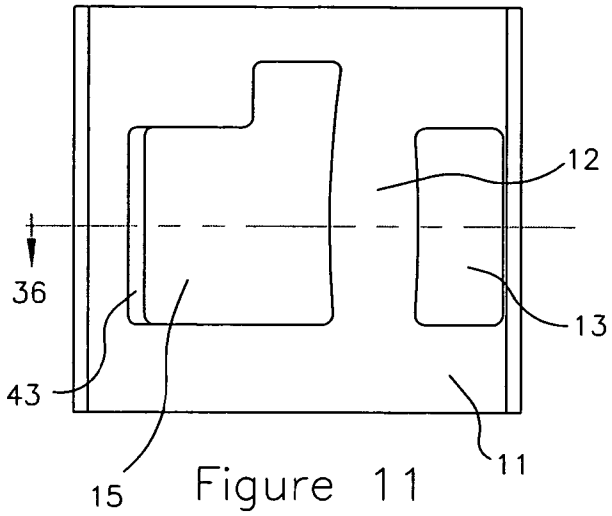

Figure 11

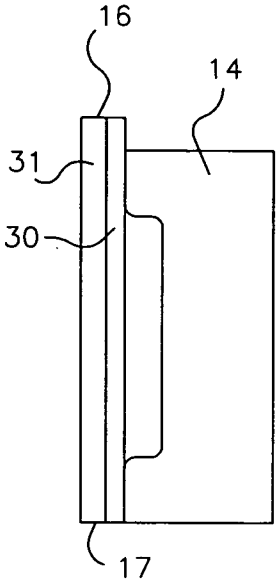

Figure 12

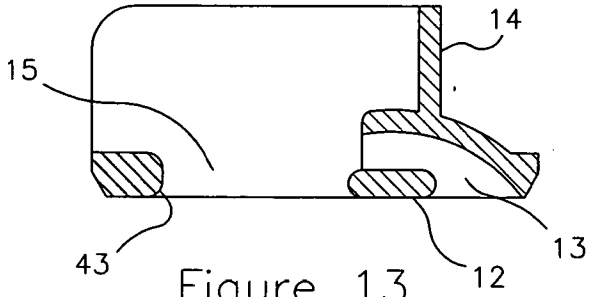

Figure 13

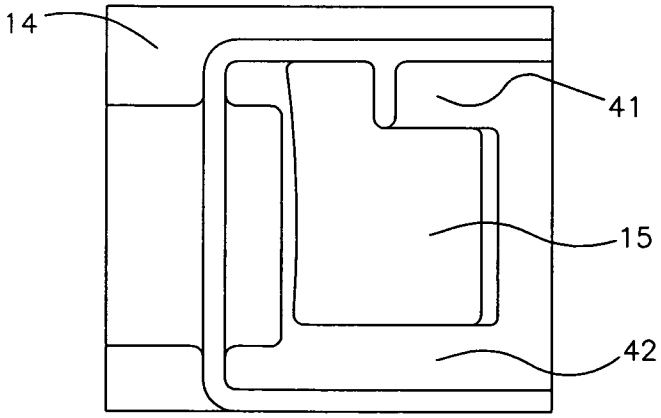

Figure 14

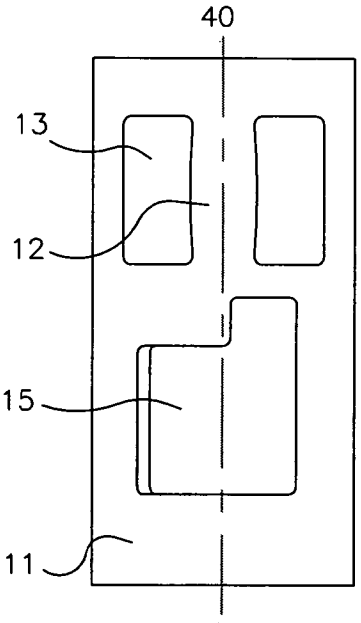

Figure 15

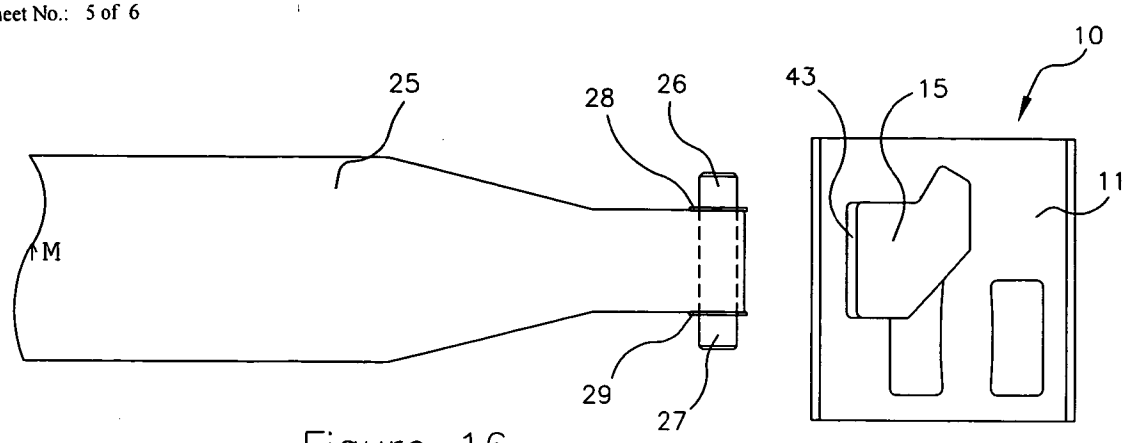

Figure 16

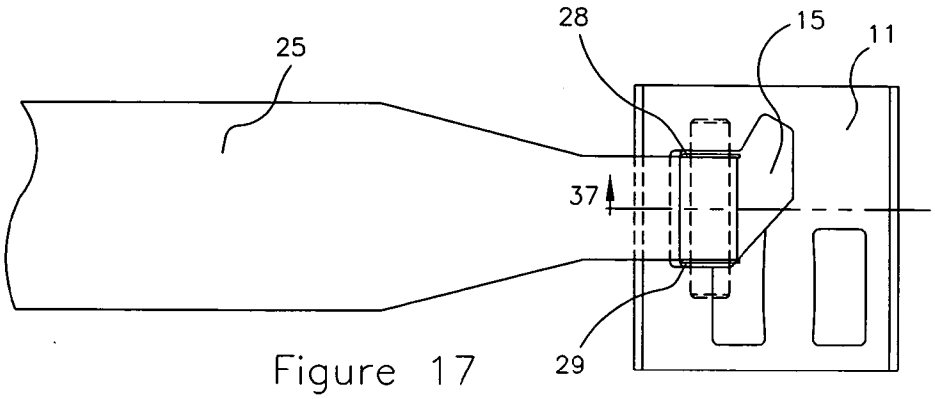

Figure 17

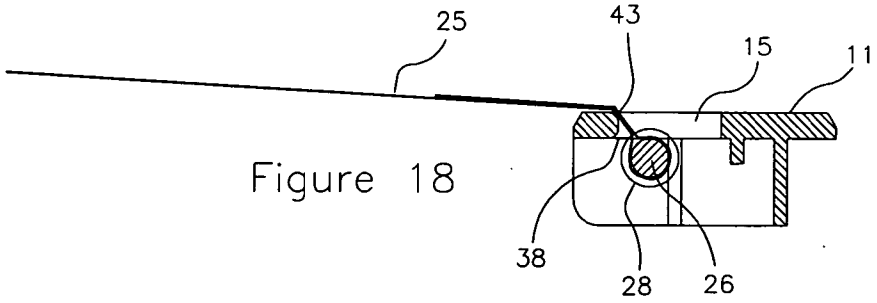

Figure 18

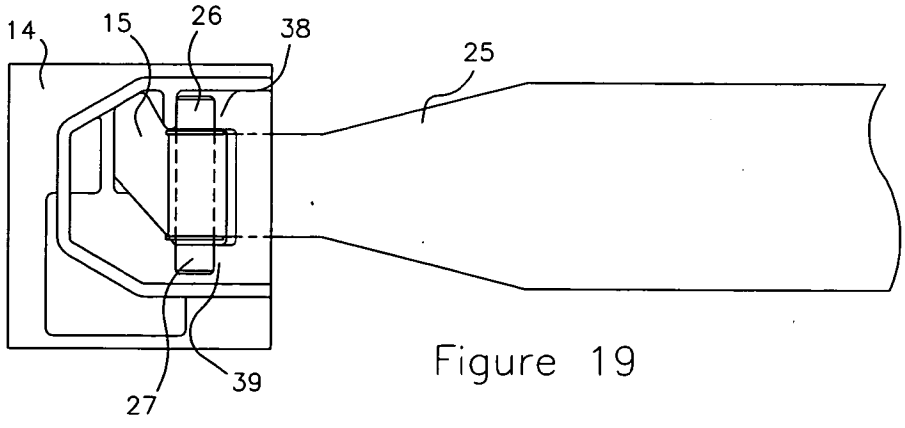

Figure 19

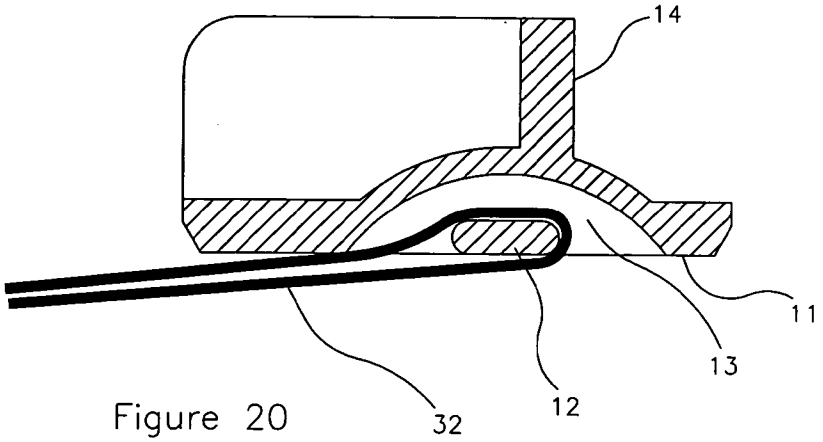

Figure 20

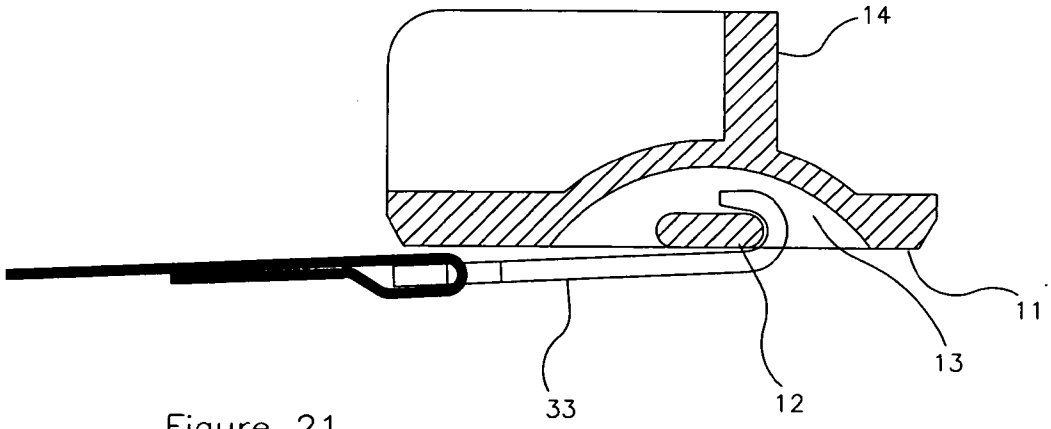

Figure 21